RHOA with hip geometry. The associations between FN cross-sectional area and RHOA were strongest for those hips with predominant osteophytes (p=0.005) compared with those with predominant JSN (p=0.98) features. In addition, in those hips with predominant osteophytes, there were significant increases in the femoral shaft diameter (p=0.007) and cortical thickness (p=0.047).

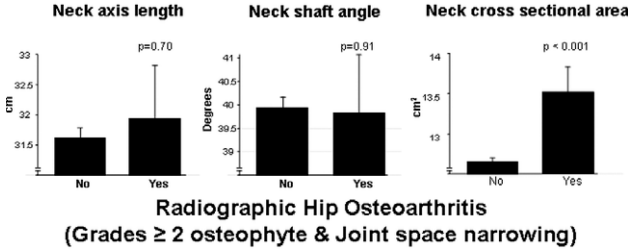

Figure 1. Relationship between Radiographic Hip Osteoarthritis and Proximal femoral size. Values are mean (95% CI). Models adjusted for age, race, height, BMI & leg muscle strength.

Conclusions: RHOA in men is associated with a greater cross sectional area but not length of the proximal femur which may reflect periosteal apposition IN response to pathological loading at the hip joint in OA. In addition, these associations seem to differ by RHOA phenotype.

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VITAMIN D STATUS IS ASSOCIATED WITH LESS BONE MINERAL DENSITY LOSS IN POSTMENOPAUSAL WOMEN WITH SELF-REPORTED OSTEOARTHRITIS

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Purpose: Patients with osteoarthritis (OA) generally have higher bone mineral density (BMD) compared to non OA sufferers. However, there is concern that as OA progresses, bone quality may worsen, as a result of increasing disuse or localised inflammation. The aim of this study was to examine BMD, BMD change and bone turnover markers in relation to self-reported osteoarthritis in a large cohort of early postmenopausal women in Northeast Scotland (57° latitude) where there is reduced quality of sunlight for cutaneous synthesis of vitamin D.
Methods: The subjects, recruited in 1990-3 for the Aberdeen Prospective Osteoporosis Screening Study, had bone density scans of the lumbar spine (LS) and hip (FN) (Norland XR26 scanner). The majority of women (n=3883) returned 6.3 [0.6] y (mean [SD]) later, aged 54.7 [2.2] y, for repeat BMD measurements. They provided second early morning fasted urine samples for analysis of bone markers (free pyridinoline, fPYD and deoxypyridinoline fDPD expressed relative to creatinine, Cr) and serum for measurement of N-terminal propeptide of type 1 collagen (P1NP) and 25-hyroxyvitamin D (25(OH)D).
Results: Reported OA sufferers (n=685) had higher BMD (g/cm^2) and higher bone resorption (nmol/mmol) compared to the rest of the population (n=3198) (FN BMD: OA 0.85 [0.12], non OA 0.83[0.12], $p<0.001$; LS BMD: OA 1.03 [0.17], non OA 1.00 [0.17], p= 0.001; fPYD/Cr: OA 5.5 [2.0], non OA 5.2 [2.0], p=0.011; fDPD/Cr: OA 20.3 [7.4], non OA 19.0 [6.7], $p<0.001$) but no difference in P1NP, change in BMD or vitamin D status. Although 25(OH)D was not associated with BMD, it was associated with less BMD loss, which was significant after adjustment for age, weight, height, menopausal status/ HRT use and physical activity level (FN: r=0.137, p=0.002, LS: r=0.099, P=0.029).
Conclusions: We found no evidence that vitamin D was protective against OA but we suggest that vitamin D may be necessary to help prevent bone loss, which may be an important consideration regarding joint replacements. Future work will require testing these observations in OA that has been validated by x-ray reports.

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CROSS-SECTIONAL RELATIONSHIP OF KNEE INJURY/KNEE SURGERY TO TIBIO-FEMORAL OSTEOATHRITIS: BASELINE DATA FROM THE OSTEOARTHRITIS INITIATIVE (OAI)

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Purpose: A better understanding of the role of knee injury and knee surgery in the development of knee osteoarthritis is needed to develop optimal preventive strategies. We therefore chose to evaluate the association of participant reported history of knee injury and/or knee surgery with the prevalence of radiographic tibio-femoral osteoarthritis (TF-ROA) in knees with and without frequent symptoms (FKSx).
Methods: We studied 2,678 men and women between the ages of 45-79 who were enrolled in the Osteoarthritis Initiative, a multi-center longitudinal cohort study of biomarkers for incidence and progression of knee osteoarthritis. Data are from the OAI public use dataset 0.1.1. Baseline bilateral PA fixed flexion x-rays were obtained in all subjects. Trained readers determined the presence of TF-ROA, defined as a definite osteophyte (OARSI atlas grade 1-3). Base-line FKSx were defined as pain, aching or stiffness on most days of any month during the past year. Self-reported knee injury that caused difficulty walking for at least 7 days, knee surgery (meniscectomy, ligamentous, arthroscopic) and knee injury resulting in surgery were assessed as the independent variables. FKSx were one of the main criteria used to determine eligibility for the OAI, so we stratified all analyses on this factor. Adjusted Odds ratios (aOR) were calculated using generalized estimating equations (GEE) to adjust for clustering of knees within subjects after adjusting for potential confounders.

Table 1. Relationship of Knee Injury/Surgery to TF-ROA

Exposure	TF-ROA (N)	FKSx	aOR	95% CI
Knee Injury				
35%	385	Yes	1.5	1.2-1.8
22%	316	No	1.9	1.6-2.2
Knee Surgery*				
17%	250	Yes	3.0	2.5-4.3
9%	155	No	3.0	2.3-4.1
Knee Surgery resulting from Injury				
13%	178	Yes	3.0	2.2-4.0
7%	114	No	2.8	2.1-3.9
Meniscectomy				
12%	175	Yes	3.1	2.3-4.2
6%	111	No	3.9	2.7-5.6
Ligamentous Surgery				
3%	45	Yes	10.2	4.1-25.3
1%	18	No	1.9	0.9-4.3
Arthroscopic Surgery				
15%	205	Yes	2.7	2.0-3.6
6%	105	No	2.7	2.0-3.7

*Includes multiple surgeries.

The multivariate analysis adjusted for the following confounders determined at the baseline interview and examination: age; gender; race; Body Mass Index; quadriceps strength; family history of knee replacement, frequent knee bending, physical activity over the past month; varus knee alignment assessed by goniometer; and presence of Hebeden's nodes.
Results: Of the 4982 knees evaluated,1963 (39%) had FKSx. Of knees with FKSx, 49.9% (980/1963) had TF-ROA, compared to 39.8% (1202/3019) in those without FKSx. The multivariate aOR's for the association of knee injury and knee surgery variables with TF-ROA are summarized in Table 1.
Conclusions: Previous knee injury, knee surgery and knee injury resulting in surgery and most types of knee surgery are all strongly associated with TF-ROA in knees both with and without FKSx even after adjusting for potential confounders in this cross-sectional study. These findings and the particulary strong association of ligamentous surgery with TF-ROA in symptomatic knees warrant further investigation in the prospective analysis of OAI and other longitudinal cohorts.

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COMPARISON OF MEASUREMENT PROPERTIES OF FIVE AT-WORK DISABLITY MEASURES IN PERSONS WITH OSTEOARTHRITIS

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Purpose: Arthritis is not only a significant contributor to absenteeism, but also presenteeism. Improved measurement of productivity losses experienced by workers is needed to better assess the impact of arthritis, in terms of the extent of at-work disability and economic burden. The suitability of existing presenteeism measures for individuals with osteoarthritis (OA) and the comparative psychometric performance of these measures in this population are currently unknown. The present aim is to concurrently compare the measurement properties of five measures of "at-work disability" in a sample of workers with OA.
Methods: Longitudinal data (baseline and 12 month follow-up) of 130 workers with OA were recruited from community and clinical samples. Measures included the Workplace Activity Limitations Scale (WALS), Standard Presenteeism Scale (SPS), Work Instability Scale for Rheumatoid Arthritis (WIS-RA), Endicott Work Productivity Scale (EWPS), and Work Limitations Questionnaire (WLQ). Score distributions (floor/ceiling effects), internal consistency (Cronbach's alpha, KR-20), construct validity (Spearman correlation coefficients, ANOVA), responsiveness [standardized response means (SRM)], and patient preference were evaluated.
Results: Study sample [mean age = 54.0 years (sd = 6.7), 80.5% female] consisted of 40.5% who had been diagnosed with OA for more than 1 year, and 49.2% who had been diagnosed for more than 5 years. Presenteeism scores were generally in the low (disability) end in all scales. Only SPS-6 showed significant floor effects (17%). Four of five scales demonstrated high internal consistency (0.89 - 0.94) except for the SPS-6 (0.75). At work disability scores showed moderate-to-high correlations (0.59 - 0.78) with work constructs (*self-reported work productivity, intrusion of arthritis on work ability*, and *generic work role*) as well as logical and statistically significant (p= 0.05 *corr.*) gradients across workers hindered by arthritis at various levels (*very much, to a degree, not at all)*. Comparatively, the WIS-RA showed the strongest correlations to work constructs (0.74 - 0.77). Correlations between presenteeism scales were only moderate (0.46 - 0.71) suggesting different response patterns. The WALS (SRM = 0.88) and WIS-RA (SRM = 0.82) were most responsive to self-reported improvements in work ability after 12 months (SRM = 0.30 - 0.48 for other measures). The WALS (34.7%) was the most preferred measure by the participants, while the SPS-6 was least preferred (3.3%).
Conclusions: Despite initially developed for persons with rheumatoid arthritis, the WIS-RA stood out as a measure exhibiting the strongest psychometric properties, and therefore should be favored for evaluating mismatches between work demands and abilities of workers. The WALS should also be strongly considered as it similarly demonstrated strong measurement properties, and was the most preferred by respondents. Psychometric concerns and low patient preference suggest that the SPS may be least suitable among these five instruments.

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ULTRASONOGRAPHIC FINDING IN KNEE OSTEOARTHRITIS. A NATION-WIDE STUDY IN SPANISH PATIENTS

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Purpose: To describe the ultrasonographic (US) findings in a Spanish cohort of patients with knee osteoarthritis (KOA). These US findings were compared with clinical and functional characteristics.
Methods: 433 patients: 69% women, 31% men, mean ± SD, 58.4 ± 13,4 years) with primary KOA according to the ACR criteria were included. The body mass index was greater than 27 in 70% of the patients. The patients were referred for the study by their general practitioner who previously had performed a clinical history and a physical examination. All patients filled-out the Womac OA questionnaire, the analogical visual scale and the SF12 questionnaire. All underwent a US examination (Philips U22, Seattle, USA) of both knees by 20 sonographers, following the EULAR guidelines, that included the presence of synovitis (defined by OMERACT) in the suprapatellar recess and parapatellar medial and lateral recesses; medial and lateral osteophytes; quadricipital and patellar enthesophytes; Baker's cyst, and meniscal extrusion (defined as a distance greater than 2 mm between the edge of the meniscus and the outer part of the tibia with the knee fully extended). Most of the US examiners had more than 10 years of experience in musculoskeletal US. Eleven sonographers with less than 10 years experience were trained in US for the study. The interobserver study performed after the training period revealed an average overall agreement of 90% for all of the parameters included in the study. Informed consent was obtained from all patients prior to the clinical and US examination.
Results: The mean ± SD number of pathological findings in patient was 7.93± 4.23.These findings were: quadricipital enthesophyte (64.29%); medial osteophytes (59.68%); lateral osteophytes (54.38%); meniscal extrusion (51.38%); and synovitis/effusion in anterior recess (50.23%). Functional score of the SF 12 questionnaire was worse in patients with lateral osteophytes (40.83 ± 6.90), synovitis in the suprapatellar recess (40.24 ± 7.10), synovitis in the medial parapatellar recess (40.29, ±8.4) and in the lateral parapatellar recess lateral (40.49 ±8.48) vs. those that did not have: lateral osteophytes(42.42±8.48, p=0.041), synovitis in the suprapatellar recess (42.88±8.05, p=0.0001), synovitis in the medial parapatellar recess(42.04±7.78, p=0.040) and synovitis in the lateral parapatellar recess (42.26±7.71, p=0.023). Pain score in WOMAC scale was worse in patients with medial osteophyte (8.97 ±4.27, p<0.0001), lateral osteophyte (9.09